Complete Summary

GUIDELINE TITLE

Coronary risk evaluation in patients with transient ischemic attack and ischemic stroke.

BIBLIOGRAPHIC SOURCE(S)

Adams RJ, Chimowitz MI, Alpert JS, Awad IA, Cerqueria MD, Fayad P, Taubert KA. Coronary risk evaluation in patients with transient ischemic attack and ischemic stroke: a scientific statement for healthcare professionals from the Stroke Council and the Council on Clinical Cardiology of the American Heart Association/Am Stroke Assoc. Circulation 2003 Sep 9;108(10):1278-90. [94 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Coronary heart disease (CHD)
- Transient ischemic attack (TIA)
- Ischemic stroke

GUIDELINE CATEGORY

Evaluation
Management

Risk Assessment
Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Neurology
Preventive Medicine

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To address issues in the management of the relatively healthy patient with brain ischemia (a transient ischemic attack [TIA] or an ischemic stroke) who does not have recognized coronary heart disease (CHD) but often has risk factors in addition to having had a TIA or stroke that indicate an increased likelihood of disability or death from cardiac disease in the future

TARGET POPULATION

Relatively healthy patients with brain ischemia (a transient ischemic attack [TIA] or an ischemic stroke)

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Evaluation

1. Myocardial perfusion imaging
2. Coronary angiography
3. Exercise electrocardiography (ECG)
4. Exercise thallium (Tl) 201 scintigraphy
5. Exercise radionuclide ventriculography
6. Signs and symptoms of coronary heart disease (CHD)
7. Stress echocardiography
8. Blood pressure
9. Serum levels of triglycerides (TG), low-density lipoprotein (LDL), and high-density lipoprotein (HDL)
10. Body mass index (BMI)
11. Hemoglobin (Hb) A_{1c}

Treatment

1. Aspirin
2. Heparins including low-molecular-weight heparins and heparinoids
3. Ticlopidine
4. Clopidogrel
5. Warfarin

6. Atenolol/nifedipine combination
7. Diltiazem/isosorbide dinitrate combination
8. Angiotensin-converting enzyme (ACE) inhibitors
9. Beta-blockers
10. Coronary angioplasty
11. Coronary artery bypass graft (CABG) surgery
12. Carotid endarterectomy
13. Counseling, nicotine replacement and buproprion for smoking cessation
14. Lifestyle modifications (weight control, physical activity, alcohol moderation, moderate sodium restriction, and emphasis on fruits, vegetables, and low-fat dairy products) and blood pressure medication for blood pressure control
15. Dietary and drug therapy (statin, resin, fibrate, or niacin) for lipid management
16. Weight management and physical activity
17. Hypoglycemic therapy and treatment of other risks (e.g. physical activity, weight management, blood pressure, and cholesterol management) for diabetes management

MAJOR OUTCOMES CONSIDERED

- Cardiac morbidity and mortality
- Cardiac outcomes
- Incidence of myocardial infarction (MI)
- Short- and long-term risk of coronary artery disease (CHD)

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review
Review of Published Meta-Analyses

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

This statement was approved by the American Heart Association Science Advisory and Coordinating Committee on June 2003. This article was published in Circulation 2003; 108:1278-1290 and was copublished in the September 2003 issue of Stroke.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Summary Recommendations

More research is needed to determine the optimal approach to recognition and treatment of asymptomatic coronary disease in patients with cerebral ischemia, preferably on the basis of ischemic stroke subtype. For more information, the reader is also referred to other reviews on this subject (Wilterdink, Furie, & Easton, 1998; Chimowitz, 1999; Bronnum-Hansen et al, 2001; Dennis et al, 1993). However, the existing information is sufficient to allow the following recommendations, pending more definitive data.

1. All patients with ischemic stroke or transient ischemic attack (TIA) should undergo a comprehensive assessment of cardiovascular risk, preferably scored on the basis of existing recommendations (such as those in the table below entitled "Adapted from American Heart Association/American College of Cardiology (AHA/ACC) Secondary Prevention for Patients with Coronary and Other Vascular Disease: 2001 Update") to identify those with the highest likelihood of morbidity and mortality from unrecognized coronary heart disease (CHD). In all cases, risk factor reduction is recommended independent of the decision to perform noninvasive cardiac testing (Smith et al, 2001).
2. Because unrecognized CHD is prevalent in patients with carotid artery disease, selected patients with high cardiovascular risk profiles and symptoms of brain ischemia in the presence of significant carotid disease should be considered for noninvasive testing for CHD.
3. Regardless of stroke subtype, patients with high CHD risk factor scores based on Framingham algorithms (10-year CHD risk •20%) should also be considered for such evaluation (Grundy et al, 1999).
4. Those with fewer CHD risk factors who do not have significant carotid artery disease or who present with stroke subtypes not clearly related to atherosclerosis are at lower risk for CHD, and routine testing is not recommended on the basis of the current state of knowledge.
5. Testing for CHD can be accomplished by using one of several methods described in the American College of Cardiology/American Heart Association (ACC/AHA) Practice Guidelines (Gibbons, Abrams, et al, 2002); (Gibbons, Balady, et al, 2002). Pharmacological stress testing may be needed in cases of significant physical impairment. Because the short-term risk for cardiac morbidity/mortality is relatively low, in most cases, cardiac evaluation generally should not be done in the acute stroke setting unless there is concern that the patient may not be available at a later time for this evaluation.
6. What constitutes significant coronary disease as well as medical versus surgical treatment must be individualized pending further studies. Both evaluation and subsequent treatment should be guided by current guidelines (Gibbons, Abrams, et al, 2002; Grundy et al, 1999; "ACC/AHA guidelines for coronary angiography," 1999; Gibbons, Balady et al, 2002; ACC/AHA, Eagle et al, 1999; SC Smith Jr et al, 2001; Pearson et al, 2002; SC Smith et al, 2001).
7. Routine testing for CHD before carotid endarterectomy (CE) is not recommended but may be prudent for subgroups at high risk on the basis of the patient´s atherosclerotic risk profile.
8. Diagnostic testing to determine stroke mechanisms of the patient with symptoms of brain ischemia is recommended because these evaluations, especially determination of the presence and severity of carotid artery disease, provide useful information for quantifying the patient´s risk for unrecognized cardiac disease, as well as selection of the best secondary stroke prevention strategies (Adams et al, 2003).
9. Systematic research on CHD testing in specific subtypes of stroke should be undertaken to determine optimal methods for patient selection, testing, and treatment, as well as the economic impact of strategies that seek to minimize cardiac comorbidity in the patient with ischemic stroke.

Table: Adapted from the American Heart Association/American College of Cardiology (AHA/ACC) Secondary Prevention for Patients with Coronary and Other Vascular Disease: 2001 Update

GOALS	INTERVENTION RECOMMENDATIONS
Smoking Goal: complete cessation	• Assess tobacco use. • Strongly encourage patient and family to stop smoking and to avoid secondhand smoke. Provide counseling, pharmacological therapy (including nicotine replacement and buproprion), and formal smoking cessation programs as appropriate.
Blood pressure control*** Goal: <140/90 mmHg or <130/80 mmHg if diabetes or chronic kidney disease	• Initiate lifestyle modification (weight control, physical activity, alcohol moderation, moderate sodium restriction, and emphasis on fruits, vegetables, and low-fat dairy products) in all patients with blood pressure •120 mmHg systolic or 80 mmHg diastolic. • Add blood pressure medication, individualized to other patient requirements and characteristics (e.g., age, race, need for drugs with specific benefits) if blood pressure is not <140 mmHg systolic or 90 mmHg diastolic or if blood pressure is not <130 mmHg systolic or <80 mmHg diastolic for individuals with diabetes or chronic kidney disease.
Lipid management Primary goal: low-density lipoprotein (LDL) 100 mg/dL	• Start dietary therapy in all patients (<7% saturated fat and <200 mg/d cholesterol), and promote physical activity and weight management. Encourage increased consumption of omega-3 fatty acids. • Assess fasting lipid profile in all patients and within 24 hours of hospitalization for those with an acute event. If patients are hospitalized, consider adding drug therapy on discharge. Add drug therapy according to the following guide: <u>LDL at baseline or on treatment, mg/dL</u> 100: Further LDL-lowering therapy not required. Consider fibrate or niacin (if low

GOALS	INTERVENTION RECOMMENDATIONS
	high-density lipoprotein (HDL) or high triglycerides (TG)). 100-129: Therapeutic options: Intensify LDL-lowering therapy (statin or resin*). Fibrate or niacin (if low HDL or high TG). Consider combined drug therapy (statin, fibrate, or niacin) (if low HDL or high TG). •130: Intensify LDL-lowering therapy (statin or resin*). Add or increase drug therapy with lifestyle therapies.
Lipid management Secondary goal: If TG •200 mg/dL, then non-HDL** should be <130 mg/dL	• If TG •150 mg/dL or HDL <40 mg/dL: Emphasize weight management and physical activity. Advise smoking cessation. • If TG 200 to 499 mg/dL: Consider fibrate or niacin after LDL-lowering therapy.* • If TG •500 mg/dL: Consider fibrate or niacin before LDL-lowering therapy.* • Consider omega-3 fatty acids as adjunct for high TG.
Physical activity Minimum goal: 30 minutes 3 to 4 days per week Optimal daily	• Assess risk, preferably with exercise test, to guide prescription. • Encourage minimum of 30 to 60 minutes of activity, preferably daily, or at least 3 or 4 times weekly (walking, jogging, cycling, or other aerobic activity) supplemented by an increase in daily lifestyle activities (e.g., walking breaks at work, gardening, household work). Advise medically supervised programs for moderate- to high-risk patients.
Weight management Goal: body mass index (BMI) 18.5-24.9 kg/m^2	• Calculate BMI and measure waist circumference as part of evaluation. Monitor response of BMI and waist circumference to therapy. • Start weight management and physical activity as appropriate. Desirable BMI range is 18.5-24.9 kg/m^2. • When BMI •25 kg/m^2, goal for waist circumference is •40 inches in men and

GOALS	INTERVENTION RECOMMENDATIONS
	• 35 inches in women.
Diabetes management Goal: HbA_{1c} <7%	• Appropriate hypoglycemic therapy to achieve near-normal fasting plasma glucose, as indicated by HbA_{1c}. • Treatment of other risks (e.g., physical activity, weight management, blood pressure, and cholesterol management).
Antiplatelet/anticoagulants	• Start and continue indefinitely aspirin 75 to 325 mg/d if not contraindicated. • Consider clopidogrel 75 mg/d or warfarin if aspirin contraindicated. Manage warfarin to international normalized ratio =2.0 to 3.0 in post-myocardial infarction (MI) patients when clinically indicated or for those not able to take aspirin or clopidogrel.
Angiotensin-converting enzyme (ACE) inhibitors	• Treat all patients indefinitely after MI; start early in stable high-risk patients (anterior MI, previous MI, Killip class II [S_3 gallop, rales, radiographic congestive heart failure (CHF)]). • Consider chronic therapy for all other patients with coronary or other vascular disease unless contraindicated.
Beta-blockers	• Start in all post-MI and acute ischemic syndrome patients. Continue indefinitely. Observe usual contraindications. • Use as needed to manage angina, rhythm, or blood pressure in all other patients.

Notes:

*The use of resin is relatively contraindicated when TG >200 mg/dL.

**Non-HDL cholesterol = total cholesterol minus HDL cholesterol.

***Blood pressure section consistent with the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC7) (Chobanian et al, 2003).

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Proper assessment of risk factors in relatively healthy patients with brain ischemia (a transient ischemic attack [TIA] or an ischemic stroke) who do not have recognized coronary artery disease but often have risk factors in addition to having had a TIA or stroke may decrease the likelihood of disability or death from cardiac disease in the future.

POTENTIAL HARMS

Not stated

CONTRAINDICATIONS

CONTRAINDICATIONS

The use of resin is relatively contraindicated when triglycerides (TG) >200 mg/dL.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

Treatment trials underestimate risk because healthier patients tend to be enrolled, but the present statement is aimed at management of healthier stroke patients, and thus these data are pertinent.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Adams RJ, Chimowitz MI, Alpert JS, Awad IA, Cerqueria MD, Fayad P, Taubert KA. Coronary risk evaluation in patients with transient ischemic attack and ischemic stroke: a scientific statement for healthcare professionals from the Stroke Council and the Council on Clinical Cardiology of the American Heart Association/Am Stroke Assoc. Circulation 2003 Sep 9;108(10):1278-90. [94 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2003 Sep 9

GUIDELINE DEVELOPER(S)

American Heart Association - Professional Association
American Stroke Association - Disease Specific Society

SOURCE(S) OF FUNDING

American Heart Association

GUIDELINE COMMITTEE

Stroke Council
Council on Clinical Cardiology

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The American Heart Association makes every effort to avoid any actual or potential conflicts of interest that may arise as a result of an outside relationship or a personal, professional, or business interest of a member of the writing panel. Specifically, all members of the writing group are required to complete and submit a Disclosure Questionnaire showing all such relationships that might be perceived as real or potential conflicts of interest.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the American Heart Association Web site:

- HTML Format
- Portable Document Format (PDF)

Print copies: Available from the American Heart Association, Public Information, 7272 Greenville Ave, Dallas, TX 75231-4596; Phone: 800-242-8721

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on October 8, 2004. The information was verified by the guideline developer on December 14, 2004.

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